51 (New). The method according to any one of claims 29-32 wherein the inside of the evaporation chamber is cleaned by plasma.

52 (New). The method according to any one of claims 26, 29, 31, 33 and 35 wherein the relative position of the evaporation source is repeatedly moved with respect to the substrate so that a same portion of the substrate is coated with the material at least twice.

53 (New). The method according to any one of claims 37 and 39 wherein the relative position of the first evaporation source is repeatedly moved with respect to the substrate so that a same portion of the substrate is coated with the first material at least twice.

REMARKS

Applicants will address each of the Examiner's objections and rejections in the order in which they appear in the Office Action of May 28, 2002.

I. Restriction Requirement

In response to the Examiner's request, Applicants confirm the election of Group II: Claims 19 and 20 for prosecution in the above-identified application. Applicants are making this election without prejudice to canceling the non-elected claims and to later filing a divisional application on the non-elected claims.

II. Form & Content of Application

A. Title

The Examiner objects to the title as being not descriptive and is requesting a new title. Applicants have amended the title to recite Method Of Manufacturing A Display Device. It is respectfully submitted that this overcomes the Examiner's objection, and it is requested that the objection be withdrawn.

B. Drawings

The Examiner objects to the drawings as being informal for margins, the character and legibility of the lines, numbers and reference numerals, and the size thereof. When the application has been allowed, Applicants will submit formal drawings to overcome each of these objections.

The Examiner also is objecting to sectional lines in Fig. 1A and the orientation of the characters in Figs. 7 and 8. Applicants have amended each of these drawings as shown in the marked-up figures to overcome these objections. Applicants are also amending the specification as page 4, lns. 6-12 to be consistent with the amendment to Figs. 1A-1C. No new matter is being added. Accordingly, it is requested that these objections be withdrawn.

III. Rejections Under 35 USC §112, 2nd Paragraph

The Examiner also rejects Claim 20 under 35 USC §112, second paragraph as being indefinite. Applicants have now amended Claim 20. It is respectfully submitted that amended Claim 20 is not indefinite, and it is requested that this rejection be withdrawn.

IV. Rejections Under 35 USC §103

A. Rejections of Claim 19

The Examiner rejects Claim 19 under 35 USC §103 as being unpatentable over Takacs et al. in view of Grothe et al. and as being unpatentable over Bennett in view of Grothe et al. and further in view of Barshter. In order to advance the prosecution of this application, Applicants have canceled Claim 19, rendering these rejections moot.

B. Rejections of Claim 20

The Examiner also rejects Claim 20 under 35 USC §103 as being unpatentable over Mizutani et al. in view of Takacs et al. and further in view of Grothe et al. and still further in view Namiki et al. This rejection is respectfully traversed.

Takacs has a filing date of December 30, 1999 and an issue date of June 12, 2001. The present application was filed on December 22, 2000 but claims priority under 35 USC §119 to Japanese application serial no. 11-371349 which was filed on December 27, 1999. A certified copy of this priority document was filed on December 22, 2000 with the present application.[1] As this priority date is prior to the filing date of Takacs, Takacs is not prior art to the present application, and the rejection based thereon should be withdrawn.

The Examiner further rejects Claim 20 under 35 USC §103 as being unpatentable over Mizutani et al. in view of Bennett in view of Grothe et al. and further in view of Barshter and still further in view of Namiki et al. This rejection is also traversed.

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[1] Applicants are preparing a precise English translation of this priority document and will submit it as soon as the translation is finished.

The present invention as claimed in independent claim 20 recites evaporating a first material to deposit said first material over the substrate, transferring the substrate from the first evaporation chamber into the second evaporation chamber after the deposition of the first material, and evaporating a second material to deposit said second material over the substrate.

Applicants respectfully submit that the cited references Mizutani, Bennett, Grothe, Barshter, and Namiki do not disclose or suggest such features. Accordingly, Claim 20 is patentable over the cited references and should be allowed.

New Claims

Applicants are adding herein new Claims

Applicants respectfully submit that these claims are patentable over the cited references. For example, new independent Claims 26, 27, 28, 31, 32, 35, 36, 39 and 40 recite that a plurality of evaporation cells are arranged along a first direction. While Grothe may disclose a plurality of vaporization vessels or crucibles in column 1, Grothe does not suggest that the plurality of vaporization vessels or crucibles are arranged along a direction. Accordingly, it is requested that the new claims also be allowed.

The fee for new claims has been calculated as shown below.

	Claims Remaining After Amendment		Highest Number Previously Paid For	Present Extra	Rate	Fee
Total	106	-	20	86	(small entity) x 9 (others) x 18	$1548.00
Independent	21	-	8	13	(small entity) x 42 (others) x 84	$1092.00
Multiple Dependent (First Presentation)					(small entity) + 140 (others) + 280	$280.00
TOTAL ADDITIONAL FEES						$ 2920.00

Applicants are enclosing the $2920.00 fee for the new claims, new independent claims and first impression of multiple dependent claims.

IDS

Applicants are preparing an IDS and will submit it in the near future. Applicants request that the Examiner withhold examination of this Amendment until he receives the new IDS.

CONCLUSION

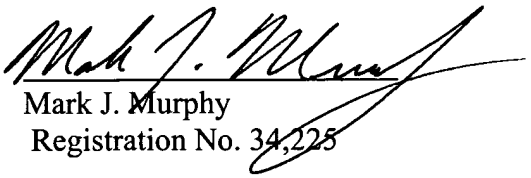
Applicants have now addressed and overcome each of the Examiner's objections and rejections in the pending Office Action in the above-identified application. Accordingly, it is

respectfully submitted that the present application is in a condition for allowance and should now be allowed.

If any further fee is due for this amendment or the new claims, please charge our deposit account 50/1039.

Favorable reconsideration is earnestly solicited.

Respectfully submitted,



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Marked-up copy of the amendments made herein:

IN THE TITLE:

Please amend the title as follows:

[Film Apparatus And Method For Forming A Film] Method Of Manufacturing A Display Device

IN THE DRAWINGS:

Please amend the drawings as shown in the attached figures in red.

IN THE SPECIFICATION:

Please amend the paragraph at page 4, lns. 6-12 as follows:

The positional relationship between the evaporation source of the present invention and the substrate is shown in Figs. 1A to 1C. Fig. 1A is a top view, Fig. 1B is a cross sectional diagram of Fig. 1A cut along the line segment [A-A'] B-B', and Fig. 1C is a cross sectional diagram of Fig. 1A cut along the line segment [B-B'] C-C'. Note that, common symbols are used in Figs. 1A to 1C.

IN THE CLAIMS:

Please amend the claims as follows:

Please cancel Claims 1-19.

20 (Amended). A method of [forming a thin film over a substrate while moving an evaporation source, having a longitudinal direction, in a direction perpendicular to the longitudinal direction of the evaporation source, wherein the substrate and a shadow mask composed of a metal are in a state of contact in accordance with an electromagnet] manufacturing a display device comprising:

providing a first evaporation source in a first evaporation chamber;

providing a second evaporation source in a second evaporation chamber wherein said first and second evaporation chambers are connected with each other through at least one gate and each of the first and second evaporation sources has an elongated shape;

disposing a substrate in the first evaporation chamber;

evaporating a first material from said first evaporation source to deposit said first material over the substrate wherein the relative position of the substrate is moved with respect to the first evaporation source during the evaporation of the first material;

transferring the substrate from the first evaporation chamber into the second evaporation chamber after the deposition of the first material;

evaporating a second material from said second evaporation source to deposit said second material over the substrate wherein the relative position of the substrate is moved with respect to the second evaporation source during the evaporation of the second material.

Please add new claims as follows.

21 (New). The method according to claim 20 further comprising a step of cleaning an inside of the first and second evaporation chambers, respectively.

22 (New). The method according to claim 20 wherein said first and second evaporation chambers are connected to each other through a conveyor chamber.

23 (New). A method of manufacturing a display device comprising:

providing a substrate and an evaporation source in an evaporation chamber;

evaporating an organic material from said evaporation source to deposit said organic material over the substrate wherein said evaporation source has an elongated shape extending along a first direction; and

repeatedly moving the relative position of the evaporation source with respect to the substrate along a second direction during the step of evaporating the material in order that a same portion of the substrate is coated with the organic material at least twice.

24 (New). A method of manufacturing a display device comprising:

providing a substrate and an evaporation source in an evaporation chamber;

evaporating an organic material from said evaporation source to deposit said organic material over the substrate wherein said evaporation source has an elongated shape extending along a first direction; and

repeatedly moving the relative position of the evaporation source with respect to the substrate along a second direction during the step of evaporating the organic material in order that a same portion of the substrate is coated with the organic material at least twice,

wherein said evaporation source is longer than at least one edge of the substrate.

25 (New). A method of manufacturing a display device comprising:

providing a substrate and an evaporation source in an evaporation chamber;

evaporating an organic material for a light emitting layer from said evaporation source to deposit said organic material over the substrate wherein said evaporation source has an elongated shape extending along a first direction; and

repeatedly moving the relative position of the evaporation source with respect to the substrate along a second direction during the step of evaporating the organic material in order that a same portion of the substrate is coated with the organic material at least twice,

wherein said evaporation source is longer than at least one edge of the substrate.

26 (New). A method of manufacturing a display device comprising:

providing a substrate and an evaporation source in an evaporation chamber;

evaporating a material from said evaporation source to deposit said material over the substrate wherein said evaporation source comprises a plurality of evaporation cells arranged along a first direction; and

moving the relative position of the evaporation source with respect to the substrate along a second direction during the step of evaporating the material.

27 (New). A method of manufacturing a display device comprising:

providing a substrate and an evaporation source in an evaporation chamber;

evaporating a material from said evaporation source to deposit said material over the substrate wherein said evaporation source comprises a plurality of evaporation cells arranged along a first direction; and

moving the relative position of the evaporation source with respect to the substrate along a

second direction during the step of evaporating the material,

wherein said evaporation source is longer than at least one edge of the substrate.

28 (New). A method of manufacturing a display device comprising:

providing a substrate and an evaporation source in an evaporation chamber;

evaporating a material from said evaporation source to deposit said material over the substrate wherein said evaporation source comprises a plurality of evaporation cells arranged along a first direction; and

repeatedly moving the relative position of the evaporation source with respect to the substrate along a second direction during the step of evaporating the material in order that a same portion of the substrate is coated with the material at least twice,

wherein said evaporation source is longer than at least one edge of the substrate.

29 (New). A method of manufacturing a display device comprising:

providing a substrate and an evaporation source in an evaporation chamber;

evaporating a material from said evaporation source to deposit said material over the substrate wherein said evaporation source has an elongated shape extending along a first direction;

moving the relative position of the evaporation source with respect to the substrate along a second direction during the step of evaporating the material; and

cleaning an inside of the evaporating chamber.

30 (New). A method of manufacturing a display device comprising:

providing a substrate and an evaporation source in an evaporation chamber;

evaporating a material from said evaporation source to deposit said material over the substrate wherein said evaporation source has an elongated shape extending along a first direction;

moving the relative position of the evaporation source with respect to the substrate along a second direction during the step of evaporating the material; and

cleaning an inside of the evaporation chamber,

wherein said evaporation source is longer than at least one edge of the substrate.

31 (New). A method of manufacturing a display device comprising:

providing a substrate and an evaporation source in an evaporation chamber;

evaporating a material from said evaporation source to deposit said material over the substrate wherein said evaporation source comprises a plurality of evaporation cells arranged along a first direction;

moving the relative position of the evaporation source with respect to the substrate along a second direction during the step of evaporating the material; and

cleaning an inside of the evaporation chamber.

32 (New). A method of manufacturing a display device comprising:

providing a substrate and an evaporation source in an evaporation chamber;

evaporating a material from said evaporation source to deposit said material over the substrate wherein said evaporation source comprises a plurality of evaporation cells arranged along a first direction;

moving the relative position of the evaporation source with respect to the substrate along a second direction during the step of evaporating the material; and

cleaning an inside of the evaporation chamber,

wherein said evaporation source is longer than at least one edge of the substrate.

33 (New). A method of manufacturing a display device comprising:

providing a substrate and an evaporation source in an evaporation chamber;

evaporating an organic material from said evaporation source to deposit said organic material over the substrate through a shadow mask wherein said evaporation source has an elongated shape extending along a first direction; and

repeatedly moving the relative position of the evaporation source with respect to the substrate along a second direction during the step of evaporating the organic material in order that a same portion of the substrate is coated with the organic material at least twice,

wherein said shadow mask is provided by an electromagnet with the substrate being located between the shadow mask and the electromagnet.

34 (New). A method of manufacturing a display device comprising:

providing a substrate and an evaporation source in an evaporation chamber;

evaporating an organic material from said evaporation source to deposit said organic material over the substrate through a shadow mask wherein said evaporation source has an elongated shape extending along a first direction; and

repeatedly moving the relative position of the evaporation source with respect to the substrate along a second direction during the step of evaporating the organic material in order that a same portion of the substrate is coated with the material at least twice,

wherein said evaporation source is longer than at least one edge of the substrate; and

wherein said shadow mask is provided by an electromagnet with the substrate being located between the shadow mask and the electromagnet.

35 (New). A method of manufacturing a display device comprising:

providing a substrate and an evaporation source in an evaporation chamber;

evaporating a material from said evaporation source to deposit said material over the substrate through a shadow mask wherein said evaporation source comprises a plurality of evaporation cells arranged along a first direction; and

moving the relative position of the evaporation source with respect to the substrate along a second direction during the step of evaporating the material; and

wherein said shadow mask is provided by an electromagnet with the substrate being located between the shadow mask and the electromagnet.

36 (New). A method of manufacturing a display device comprising:

providing a substrate and an evaporation source in an evaporation chamber;

evaporating a material from said evaporation source to deposit said material over the substrate through a shadow mask wherein said evaporation source comprises a plurality of evaporation cells arranged along a first direction; and

moving the relative position of the evaporation source with respect to the substrate along a second direction during the step of evaporating the material,

wherein said evaporation source is longer than at least one edge of the substrate, and

wherein said shadow mask is provided by an electromagnet with the substrate being located between the shadow mask and the electromagnet.

37 (New). A method of manufacturing a display device comprising:

providing a first evaporation source in an evaporation chamber;

providing a second evaporation source in a second chamber connected to the evaporation chamber wherein each of the first and second evaporation sources has an elongated shape extending along a first direction;

disposing a substrate in the evaporation chamber;

evaporating a first material from said first evaporation source to deposit said first material over the substrate;

transferring the second evaporation source from the second chamber into the evaporation chamber after evaporating the first material;

evaporating a second material from said second evaporation source to deposit said second material over the substrate in the evaporation chamber;

moving the relative position of the first evaporation source with respect to the substrate along a second direction during the step of evaporating the first material; and

moving the relative position of the second evaporation source with respect to the substrate along the second direction during the step of evaporating the second material.

38 (New). A method of manufacturing a display device comprising:

providing a first evaporation source in an evaporation chamber;

providing a second evaporation source in a second chamber connected to the evaporation chamber wherein each of the first and second evaporation sources has an elongated shape extending along a first direction;

disposing a substrate in the evaporation chamber;

evaporating a first material from said first evaporation source to deposit said first material over the substrate;

transferring the second evaporation source from the second chamber into the evaporation chamber after evaporating the first material;

evaporating a second material from said second evaporation source to deposit said second material over the substrate in the evaporation chamber;

moving the relative position of the first evaporation source with respect to the substrate along a second direction during the step of evaporating the first material; and

moving the relative position of the second evaporation source with respect to the substrate along the second direction during the step of evaporating the second material,

wherein each of the first and second evaporation sources is longer than at least one edge of the substrate.

39 (New). A method of manufacturing a display device comprising:

providing a first evaporation source in an evaporation chamber wherein the first evaporation source comprises a plurality of first evaporation cells arranged along a first direction;

providing a second evaporation source in a second chamber connected to the evaporation chamber wherein the second evaporation source comprises a plurality of second evaporation cells;

disposing a substrate in the evaporation chamber;

evaporating a first material from said first evaporation source to deposit said first material over the substrate;

transferring the second evaporation source from the second chamber into the evaporation chamber after evaporating the first material so that the plurality of second evaporation cells are arranged in the first direction;

evaporating a second material from said second evaporation source to deposit said second material over the substrate in the evaporation chamber;

moving the relative position of the first evaporation source with respect to the substrate along a second direction during the step of evaporating the first material; and

moving the relative position of the second evaporation source with respect to the substrate along the second direction during the step of evaporating the second material.

40 (New). A method of manufacturing a display device comprising:

providing a first evaporation source in an evaporation chamber wherein the first evaporation source comprises a plurality of first evaporation cells arranged along a first direction;

providing a second evaporation source in a second chamber connected to the evaporation chamber wherein the second evaporation source comprises a plurality of second evaporation cells;

disposing a substrate in the evaporation chamber;

evaporating a first material from said first evaporation source to deposit said first material over the substrate;

transferring the second evaporation source from the second chamber into the evaporation chamber after evaporating the first material so that the plurality of second evaporation cells are arranged in the first direction;

evaporating a second material from said second evaporation source to deposit said second material over the substrate in the evaporation chamber;

moving the relative position of the first evaporation source with respect to the substrate along a second direction during the step of evaporating the first material; and

moving the relative position of the second evaporation source with respect to the substrate along the second direction during the step of evaporating the second material,

wherein each of the first and second evaporation sources is longer than at least one edge of the substrate.

41 (New). A method of manufacturing a display device comprising:

providing a substrate and an evaporation source in an evaporation chamber;

evaporating an organic material for a light emitting layer from said evaporation source to deposit said organic material over the substrate; and

repeatedly moving the relative position of the evaporation source with respect to the substrate in order that a same portion of the substrate is coated with the material at least twice.

42 (New). A method of manufacturing a display device comprising:

providing a substrate and an evaporation source in an evaporation chamber;

evaporating a material from said evaporation source to deposit said material over the substrate;

moving the relative position of the evaporation source with respect to the substrate; and

cleaning an inside of the evaporation chamber.

43 (New). The method according to any one of claims 23-40 wherein said second direction is orthogonal to the first direction.

44 (New). The method according to claim 20 wherein the relative position of the first evaporation source is moved with respect to the substrate in a direction orthogonal to an elongation direction of the first evaporation source.

45 (New). The method according to claim 20 wherein the relative position of the second evaporation source is moved with respect to the substrate in a direction orthogonal to an elongation direction of the second evaporation source.

46 (New). The method according to any one of claims 23-36 and 41-42 wherein said material comprises a light emitting material.

47 (New). The method according to any one of claims 26-32, 35, 36 and 42 wherein said material is an organic material.

48 (New). The method according to any one of claims 20 and 37-40 wherein at least one of the first and second materials is an organic material.

49 (New). The method according to any one of claims 20 and 23-42 wherein said display device is an active matrix type electroluminescence display device.

50 (New). The method according to claim 23 wherein said evaporation source has a length greater than 300 mm.

51 (New). The method according to any one of claims 29-32 wherein the inside of the evaporation chamber is cleaned by plasma.

52 (New). The method according to any one of claims 26, 29, 31, 33 and 35 wherein the relative position of the evaporation source is repeatedly moved with respect to the substrate so that a same portion of the substrate is coated with the material at least twice.

53 (New). The method according to any one of claims 37 and 39 wherein the relative position of the first evaporation source is repeatedly moved with respect to the substrate so that a same portion of the substrate is coated with the first material at least twice.